

REMARKS

Applicant has canceled claims 1, 7, 16, rewritten portions of Claims 2-4, 6, 8-10, 12-15, 17-22, and added new claims 23-27. Claims 2-6, 8-15, and 17-27 are pending in the instant application. Support for the claim amendments can be found in the originally filed claims and throughout the specification on e.g. p. 5, line 12 through p. 6, line 10; p. 10, line 28 through p. 12, line 20; and Fig. 7. The changes from the previous version to the rewritten version are shown in attached Appendix A, with strikethrough for deleted matter and underlining for added matter.

Claims 17-22 were objected to under 37 C.F.R. 1.75 as being substantial duplicates of claims 1, 7, and 16. Claims 1, 3, 17, and 20 were rejected under 35 USC § 102(b) as being anticipated by Japanese reference, JP-59133. Claim 2 was rejected under 35 USC § 103(a) as being unpatentable over the JP-59133 reference as applied to claims 1, 3, 17, and 20 above, and further in view of Collins (U.S. 4,815,370). Claims 1, 3-6, 17, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Driessen (U.S. 4,790,242) in view of Swanson (U.S. 4,293,290) and the JP-59133 reference. Claims 7, 9-16, 19, and 22 were rejected under 35 USC § 103(a) as being unpatentable over Driessen (U.S. 4,790,242) in view of the JP-59133 reference. Claims 2 and 8 were rejected under 35 USC § 103(a) as being unpatentable over Driessen (U.S. 4,790,242) in view of the JP-59133 reference as applied to claims 1 and 7 above, and further in view of Collins (U.S. 4,815,370). In view of Applicant's cancellation of claims 1, 7, and 16, claims 2-6, 8-15, 19, 20, and 22 stand rejected. Claims 18 and 21 are not under rejection. Claims 2-6, 8-15, and 17-27 are pending in the instant application.

Reconsideration of the above rejections is respectfully requested in view of the following remarks.

Claims Objections under 37 C.F.R. 1.75

Applicant has canceled claims 1 and 16. However, Applicant respectfully traverses the examiner's contention that claims 17-22 are substantial duplicates of any one of claims 1, 7 or 16. Claim 19 is drawn to a method for forming a thin continuous sheet of material from a molten, viscous cheese starting material comprising the step of

introducing molten, viscous cheese starting material through an inlet. None of claims 1, 7 or 16 recite a method explicitly reciting the step of introducing cheese starting material through an inlet; method claim 16 is drawn to a method for forming a thin continuous sheet of generic molten, viscous starting material comprising the step of introducing generic starting material through an inlet. The examiner notes that the newly added claims 17-22 are not different from the scope of claims 1-16 and that “[c]laims directed to [an] apparatus must be distinguished in terms of structure rather than function” (response, p. 8). Claim 19 is clearly drawn to a method comprising a more narrow scope than in the method of claim 16. Thus, the examiner’s contention does not apply to the method of claim 19.

Claims 18 and 21 are patentably distinguishable from claim 7. Claim 7 is drawn to a manifold comprising a roller and a chamber, wherein the manifold is designed for cooperation with an adjacent casting belt. None of claims 17-22, as previously written, recite a manifold patentably defined by these limitations. Claims 18 and 21 recite a manifold comprising a roller and a chamber, wherein the manifold is designed for cooperation with an adjacent casting line positioned downstream of the manifold. A casting line is not synonymous with a casting belt (see e.g. p. 9, lines 23-25). Although claim 7 recites a casting line in the preamble, it is merely an intended use limitation having no patentable weight.

35 U.S.C. § 102 Claim Rejections

Independent Claims 17, 20

Dependent Claim 3

Claims 1, 3, 17, and 20 were rejected under 35 USC § 102(b) as being anticipated by Japanese reference, JP-59133. Claim 1 has been canceled; claims 3, 17, and 20 are therefore under rejection. The examiner essentially contends that JP-59133 anticipates claims 3, 17, and 20 because it teaches an apparatus comprising every limitation recited in said claims.

Reconsideration of this rejection is respectfully requested. Neither of claims 3, 17, nor 20 recite a device capable of discharging molten, viscous material under pressure using the apparatus set forth in the JP-59133 disclosure. JP-59133 discloses

a screw pump (4) in a cylinder (1) provided with a dough hopper (3) and a rotary roller (7) provided at the top of the cylinder (1). Applicant's apparatus invention of claim 17 comprises a pump providing a pressure of at least 1 psi to the molten, viscous cheese material exiting the pump so as to facilitate uniform transfer of said material to the inlet of a discharge manifold comprising a roller and a hollow chamber for receiving and discharging under pressure said cheese material onto a casting line comprising a casting belt driven by a drive mechanism connected to said belt. Applicant's invention of claim 20 comprises a pump, a manifold comprising a roller and a hollow chamber for receiving and discharging under pressure molten, viscous material onto a casting line comprising a casting belt driven by a drive mechanism connected to said belt wherein said pump provides sufficient pressure to discharge said material in a gap between the an outer surface of the roller and the surface of the belt so as to evenly distribute said material across the width of the belt. In dependent claim 3, a second drive mechanism is connected to drive the roller. Although the screw (4) in the JP-59133 disclosure may be broadly interpreted as a pump or auger capable of pushing semi-solid dough material toward the roller under pressure, it would not provide a sufficient pressure to form a continuous sheet of molten, viscous material across the width of the belt carrying the molten, viscous cheese material (claim 17) or molten, viscous material (claim 20). Inasmuch as the auger of JP-59133 would cut through the molten, material, it would be unable to exert the required pressure to extrude the material in a uniform way onto the roller and would be unable to prevent backflow. Instead, the auger would merely recirculate the molten fluid. Without the required pressure, streaking will occur (p. 12, lines 1-6). The claimed apparatus further comprises a discharge manifold comprising an opening to discharge molten, viscous material in a pressurized state onto a casting belt. "Pressurize" is defined as a condition "to confine the contents of under a pressure greater than that of the outside atmosphere". See Merriam-Webster's Collegiate Dictionary 920 (10th ed. 1999; copy of p. 920 is attached). The apparatus in JP-59133 would not discharge or transfer molten fluid material under the pressurized conditions of the instant invention.

The examiner argues that the JP-59133 "discloses a pressurized discharge manifold because the screw pump would build up a lot of pressure when transferring

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material from the hopper to the discharge manifold" (sentence abridging p. 6-7). However, this argument is not substantiated by any evidence from the JP-59133 disclosure, nor can it be reasonably inferred as being an inherent characteristic of the disclosed apparatus. For example, there is nothing to suggest that the disclosed apparatus "confine[s] the [dough] contents under a pressure greater than that of the outside atmosphere". Transfer of the dough in the open system or the prior art disclosure is consistent with a condition where there is not greater pressure within the apparatus as compared to the outside atmosphere.

Applicants note for the record that JP-59133 was previously cited as a secondary reference for an obviousness rejection against related claims 1 and 7 (now canceled), which largely resemble claims 17, 18, 20, and 21 as rejected. However, the examiner did not previously consider JP-59133 as 102(b) art against the subject matter of the instant rejection.

In view of the above arguments, reconsideration and withdrawal of this rejection is respectfully requested.

35 U.S.C. § 103 Claim Rejections

Independent Claims 17, 20

Dependent Claims 3-6

Claims 1, 3-6, 17, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Driessen (U.S. 4,790,242) in view of Swanson (U.S. 4,293,290) and the JP-59133 reference. Claim 1 has been canceled; apparatus claims 3-6, 17, and 20 are therefore under rejection. The examiner contends that the primary reference of Driessen discloses an apparatus for casting cheese comprising all of the structural limitations of claims 3-6, 17, and 20 with the exception of a pump and roller, which are taught by Swanson and JP-59133, respectively. Applicant's claimed invention is drawn to an apparatus comprising a pump connected to an inlet, a discharge manifold comprising a roller and a hollow chamber for receiving and discharging under pressure viscous material, a casting line comprising a casting belt, and a drive mechanism connected to said belt (cl. 17, 20). Dependent claims 3-6 recite additional limitations, including a second drive mechanism connected to drive the roller (cl. 3); a manifold

having a plurality of inlets extending into its interior portion (cl. 4); a manifold comprising inlets attached to a corresponding adjustable valve (cl. 5); and a manifold removably mountable from the adjacent belt (cl. 6).

Reconsideration of this rejection is respectfully requested. The primary reference of Driessen discloses a discharge manifold for a cheese casting apparatus for receiving and uniformly discharging hot processed cheese products across the width of a cooling belt and accurately adjusting the thickness and width of the discharged product. Driessen fails to disclose a pump or a roller and fails to provide any suggestion or motivation to include such elements in the disclosed invention. The examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made "to have modified Driessen by providing a pump for transporting the cheese as taught by Swanson, because the pump facilitate[s] cheese-transferring from the storage hopper to the processing site" (p. 4). The examiner further contends that it would have been obvious to one of ordinary skill in the art at the time of the claimed invention was made to have replaced Driessen's control bar with a rotatable press roller as taught by the Japanese reference, because the roller would be stronger and ...better at wear resistance than the control bar" (p. 4).

These arguments fail for a number of reasons. First, Driessen does not disclose a storage hopper as asserted by the examiner. Thus, the examiner's logic is flawed. Secondly, when applying 35 U.S.C. 103, the claimed invention must be *considered as whole*, not the claimed differences themselves. Therefore, when considering the references as a whole, they must suggest the desirability of making the combination without the benefit of hindsight afforded by the claimed invention (MPEP 2141). There is nothing from either Driessen or Swanson to suggest a motivation for incorporating a pump into the invention of Driessen. The examiner contends that Driessen's reference to the fact that a discharge manifold "must have a capacity for receiving hot melted cheese product under pressure and distributing it uniformly along the full length of the manifold (col. 1, lines 56-60)"...makes the examiner to believe that Driessen does indeed, utilize a pressurized discharge manifold" (p. 6). Regardless of whether there is a suggestion of a pressurized discharge manifold so as to render obvious the incorporation of a pump, the argument is flawed, because it presupposes a readily

apparent need for a pump, absent any evidence from either of the references or knowledge generally available to one of ordinary skill. Not only does the Driessen disclosure fail to disclose a pump, but it fails to disclose the critical aspect of the invention, the roller manifold. The examiner's piecemeal reasoning for combining two disparate elements into the primary reference is not supported by any overriding objective, nor is the reasoning consistent with the goals and purposes of the claimed invention which are predicated on Applicant's discovery that incorporating a roller into a conventional discharge manifold solves a problem in the art necessitating regulation of molten material transfer so as to ease the pressure of material being pumped through the manifold and permit more even distribution of particularly viscous and sticky molten material without tearing or clogging. Neither of the references suggest any such problem needing a further solution. Driessen teaches that processed cheese products are difficult to cut or slice because the cheese tends to cling to the cutting surfaces and provides an improved discharge manifold for promoting better transfer and processing of cut or sliced cheese products. Without an appropriate suggestion or rationale to include a roller to e.g. better distribute molten material to prevent tearing or clogging there would have no motivation to combine these references, particularly since the primary reference teaches that the disclosed manifold meets the above-described structural/functional limitations and/or objectives. There is no evidence that one skilled in the art would have recognized at the time of Driessen's invention any further tearing or clogging problems suggesting or necessitating incorporation of a roller. Moreover, if there were such a suggestion, there is no reasonable expectation of success to incorporate a roller into the manifold in accordance with the newly amended structural and functional limitations or objectives of Applicants claimed invention.

Further, a skilled artisan would not have looked to the semi-solid dough art of JP-59133 for a solution to the problem of molten material clogging or tearing, since that disclosure is directed to a completely different type of non-fluid material exhibiting completely different properties and challenges. The examiner contends that "[i]t has been well known in the art that dough and cheese have close properties, that a machine is used for cheese processing is also useable for dough, or vice versa". However, this unsubstantiated assertion is not sufficiently supported by any factual evidence of record.

The fact that a roller might facilitate the discharge of semi-solid cookies dough would not constitute sufficient motivation to combine, nor provide a reasonable expectation of success in helping to regulate the discharge of a molten *fluid* material known to clog and tear using the prior art devices as set forth in e.g. Driessen. Further, the examiner's suggestion that the pump of Swanson might to be useful for pumping dough or processed cheese does not clearly address the problems of clogging or tearing, nor the lack of a sufficient suggestion to combine the features of the prior art into the primary reference to produce the claimed invention *as a whole*.

It is further noted that Applicant's claimed invention discharges material 15 between a roller 16 and a flat belt 16 resulting in a smooth, uniform exiting material. In contrast, combining the roller 7 of the Japanese reference with Driessen, which utilizes a curved belt 61 on an angled idler drum 62 at the discharge point, would result in the material exiting between the two angled surfaces thereby resulting in a less smooth, less uniform exiting material than Applicant's invention, thereby defeating the purpose and advantages of Applicant's invention. In response to this argument, the examiner merely sets forth "the strong belie[f] that the smooth and uniform of the sheet material is depended on the smoothness of the contact surface" without regard to Applicants arguments directed to exiting of material at the outlet between two parallel angled rollers which would impede the flat, smooth, uniform exiting of the material in accordance with Applicants claimed invention. No factual evidence is provided to support Applicants "strong belief".

Applicants recognize that the reason or motivation to modify the reference may often suggest what the invention has done, but for a different purpose to solve a different problem, and that the prior art need not suggest the combination to achieve the same advantage or result discovered by applicant (MPEP 2144). The examiner's asserted motivation for combining the roller of JP-59133 is consistent with the reference providing a different motivation than that recognized by Applicants. However, the examiner's motivation to combine is predicated on the unsubstantiated assertion that the roller would be stronger and more wear-resistant than the control bar set forth in the discharge manifold of Driessen and that the roller would convey the material at a faster rate onto the casting belt. These arguments fail because they are not supported by any

factual evidence of record from either the references themselves or from any knowledge that would be readily discernable or known to those of ordinary skill in the art at the time the invention was made. The mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). In view of the above arguments, reconsideration and withdrawal of this rejection is respectfully requested.

Independent Claims 19, 22

Dependent Claims 9-15

Claims 7, 9-16, 19, and 22 were rejected under 35 USC § 103(a) as being unpatentable over Driessen (U.S. 4,790,242) in view of the JP-59133 reference. Claims 7 and 16 have been canceled; claims 9-15, 19, and 22 are therefore under rejection. Independent claims 19 and 22 are drawn to methods for forming thin continuous sheets of material from a molten, viscous cheese starting material (cl. 19) or from a generic molten, viscous starting material (cl. 22). Reconsideration of this rejection is respectfully requested.

Dependent claims 9-15 are directed to the manifold set forth in claim 21. Inasmuch as the evidence of record deems independent claim 21 to be free of the prior art, dependent claims 9-15 would be free of the art also. However, to the extent that examiner's arguments against 9-15 may apply to the instant claims, the examiner's arguments fail to support a *prima facie* case of obviousness essentially for the same reasons set forth in the rejection against claims 3-6, 17, and 20 above. Specifically, the examiner has failed to provide a sufficient basis or motivation for combining the roller from the semi-dough art of JP-59133 with the discharge manifold of Driessen directed to molten cheese products. The examiner's argument for motivation to combine is predicated on the unsubstantiated assertion that the roller would be stronger and more wear-resistant than the control bar set forth in the discharge manifold of Driessen and on the proposition that the roller would convey the material at a faster rate onto the casting belt. This motivation is not supported by any factual evidence of record from

either the references themselves or any knowledge that would be readily discernable or known to those of ordinary skill in the art at the time the invention was made.

Claim 19 is directed to a method for forming a continuous sheet from a molten, viscous cheese starting material wherein said starting material is introduced under a pressure of at least 1 psi through at least one inlet of the chamber manifold. Claim 22 is directed to a method for forming a continuous sheet from a molten, viscous starting material wherein said starting material is dispensed as a continuous sheet of material under sufficient pressure upon the revolvingly driven casting belt to evenly distribute the sheet of material across the width of the belt. The examiner's arguments fail to support a *prima facie* case of obviousness essentially for the same reasons set forth above in the rejection against apparatus claims 3-6 and 20 and method claims 9-15. Neither of the references Reconsideration and withdrawal of this rejection is respectfully requested.

Dependent Claim 2

Claim 2 was rejected under 35 USC § 103(a) as being unpatentable over the JP-59133 reference as applied to claims 1, 3, 17, and 20 above, and further in view of Collins (U.S. 4,815,370). Newly amended claim 2 depends from claim 20. Upon consideration of Applicants arguments directed to the rejections against independent claim 20, dependent claim 2 should be free of the prior art. Consequently, Applicants respectfully request reconsideration of the rejection.

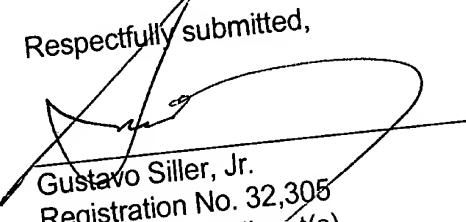
Dependent Claims 2, 8

Claims 2 and 8 were rejected under 35 USC § 103(a) as being unpatentable over Driessen (U.S. 4,790,242) in view of the JP-59133 reference as applied to claims 1 and 7 above, and further in view of Collins (U.S. 4,815,370). Claims 1 and 7 have been canceled. Upon consideration of Applicants arguments directed to the rejections against newly amended independent claim 21, which is essentially identical to claim 7, dependent claims 2 and 8 should be free of the prior art. Applicants would further note that the examiner's basis for combining Collins with Driessen and JP-59133 is flawed because it relies on the unsubstantiated proposition that stainless steel is a better

choice for making a mold or a press roller and that combining the steel roller containing a plastic sleeve as taught by Collins would facilitate smoothing of the web surface and replacement of the sleeve rather than the roller. First, the statement by the examiner fails to provide any factual evidence to support the assertion that a stainless steel roller would be better or more durable than the roller of JP-59133 or that there would be a sufficient motivation for substituting the stainless steel/plastic sleeve roller of Collins into a semi-solid dough-directed roller of JP-59133 incorporated into a molten fluid material directed processing apparatus of Driessen. Further, the examiner fails to indicate how a roller made of steel containing a plastic sleeve would aid in smoothing the web surface over the roller of JP-59133. Absent specific factual evidence for combining these references, Applicants rejection appears to rely on hindsight evidence gathered from Applicant's claimed invention.

In view of the above arguments and amendments presented above, it is believed that this application is now in condition for allowance. Such action is respectfully requested.

Respectfully submitted,



Gustavo Siller, Jr.
Registration No. 32,305
Attorney for Applicant(s)

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

APPENDIX A
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In the Claims

Please amend Claim 2-4, 6, 8-10, 12-15, and 17-22 as follows:

2. (Amended) The apparatus as claimed in Claim 1-20 wherein said roller comprises a stainless steel cylinder; and a plastic sleeve that is shrunk on to said cylinder.
3. (Amended) The apparatus as claimed in Claim 1-20 further comprising a second drive mechanism connected to drive said roller.
4. (Amended) The apparatus as claimed in Claim 1-20 wherein said manifold has a plurality of -inlets extending into said interior portion.
6. (Twice Amended) The apparatus as claimed in Claim 1-20 wherein said manifold is removably mountable from adjacent said endless belt so that more than one type of manifold may be interchangeably mounted adjacent said endless belt.
8. (Amended) The apparatus manifold as claimed in Claim 7-21 wherein said roller comprises a stainless steel cylinder, and a plastic sleeve that is shrunk on to said cylinder.
9. (Amended) The manifold as claimed in Claim 7-21 further comprising a drive mechanism connected to drive said roller.
10. (Amended) The manifold as claimed in Claim 7-21 wherein said chamber has a plurality of inlets extending into said 'interior portion.'
12. (Amended) The manifold as claimed in Claim 7-21 wherein said roller is set a fixed distance from the casting belt and a space is formed between a surface of the roller and the casting belt.

13. (Amended) The manifold as claimed in Claim 7-21 wherein said fixed distance from the casting belt determines the final sheet thickness of said material.

14. (Amended) The manifold as claimed in Claim 7-21 wherein the tandem movement of said roller and said casting belt draws the starting material from said manifold.

15. (Amended) The manifold as claimed in Claim 7-21, wherein said manifold is removable so that more than one type of manifold may be interchangeably mounted in said mounting area.

17. (Amended) An apparatus for forming a continuous sheet from a molten, viscous cheese material comprising:

a pump providing a pressure of at least 1 psi connected to an inlet to pump said molten, viscous cheese material exiting said pump so as to facilitate uniform transfer of said material to an inlet under pressure;

a discharge manifold comprising a roller and, said manifold having a hollow interior chamber, said chamber having at least one inlet for receiving said molten, viscous cheese material from said pump and a discharge opening on at least one side for discharging said molten, viscous cheese material, and a roller;

a casting line positioned downstream of said discharge manifold and comprising an endless casting belt that transports said molten, viscous cheese material upon said casting belt;

said endless casting belt mounted adjacent to said manifold, said belt facing said discharge opening, said roller rotatably mounted adjacent said endless belt to form a gap between an outer surface of said roller and the surface of said belt and said manifold disposed such that said molten, viscous cheese material is received in said gap from said discharge opening, said belt being revolving driven such that said molten, viscous cheese material passes between said gap to form said continuous sheet of molten, viscous cheese material therebetween, wherein said molten, viscous cheese material cools on said belt; and

a first drive mechanism connected to said belt for causing said belt to revolve.

18. (Amended) A manifold for forming a continuous sheet from a molten, viscous cheese material upon a casting belt of a casting line moving in a first direction, said manifold comprising:

a roller positioned such that a longitudinal axis of said roller is perpendicular to the first direction of said casting belt;

said casting line positioned downstream of said manifold for transporting said molten, viscous cheese material upon said casting belt, wherein said molten, viscous cheese material cools on said belt;

a chamber, having an interior portion, disposed adjacent to said roller; said chamber having top, bottom, end, upstream and downstream face plates;

said bottom face open to the casting belt along at least a part of the length of said bottom face;

said downstream face open to the roller along at least a part of the length of said downstream face;

said top face having at least one inlet;

said manifold being removably mountable mounted adjacent said casting belt in at least one mounting area.

19. (Amended) A method for forming a thin continuous sheet of material from a molten, viscous cheese starting material comprising the steps of:

a. driving a casting belt of a casting line in a constant direction;

b. introducing said molten, viscous cheese starting material under a pressure of at least 1 psi through at least one inlet into a chamber of a manifold that is mounted in an mounting-area so that the manifold sits adjacent to the casting belt at a fixed distance and disposes said molten, viscous cheese starting material onto said casting belt through an outlet;

c. driving a roller in the same direction as said casting belt, said roller being attached to said manifold downstream of said outlet and above said outlet such

that said molten, viscous cheese starting material passes between said roller and said belt;

d. drawing the molten, viscous cheese starting material from said chamber under pressure through the tandem movement of the roller and the casting belt in the same direction;

e. dispensing a continuous sheet of material upon the casting belt as the belt is revolvingly driven; and

f. cooling said continuous sheet of material on said casting belt.

20. (Amended) An apparatus for forming a continuous sheet from a molten, viscous material comprising:

a pump providing a pressure connected to an inlet to pump said molten, viscous material under pressure as facilitate uniform transfer of said material to an inlet;

a discharge manifold, comprising a roller and said manifold having a hollow interior chamber, said chamber having at least one inlet for receiving said molten, viscous material from said pump and a discharge opening on at least one side for discharging said molten, viscous material under pressure, and a roller;

a casting line positioned downstream of said discharge manifold and comprising an endless casting belt that transports said molten, viscous material upon said casting belt, said endless casting belt having a width;

said endless casting belt mounted adjacent to said manifold, said belt facing said discharge opening, said roller rotatably mounted adjacent said endless belt to form a gap between an outer surface of said roller and the surface of said belt and said manifold disposed such that said molten, viscous material is received in said gap from said discharge opening, said belt being revolving driven such that said molten, viscous material passes between said gap, said pump providing sufficient pressure to said molten, viscous material to form said a continuous sheet of molten, viscous material therebetween evenly distributed across said width of said belt, wherein said molten, viscous material cools on said belt; and

a first drive mechanism connected to said belt for causing said belt to revolve.

21. (Amended) A manifold for forming a continuous sheet from a molten, viscous material exiting the manifold under pressure upon a casting belt of a casting line moving in a first direction, said manifold comprising:

a roller positioned such that a longitudinal axis of said roller is perpendicular to the first direction of casting belt;

said casting line positioned downstream of said manifold for transporting said molten, viscous material upon said casting belt, wherein said molten, viscous material cools on said belt;

a chamber, having an interior portion, disposed adjacent to said roller; said chamber having top, bottom, end, upstream and downstream face plates;

said bottom face open to the casting belt along at least a part of the length of said bottom face;

said downstream face open to the roller along at least a part of the length of said downstream face;

~~said downstream face open to the roller along at least a part of the length of said downstream face;~~

said top face having at least one inlet;

said manifold being removably mountable adjacent said casting belt in at least one mounting area.

22. (Amended) A method for forming a thin continuous sheet of material from a molten, viscous starting material comprising the steps of.

a. driving a casting belt of a casting line in a constant direction, said casting belt having a width;

b. introducing said starting material under pressure through at least one inlet into a chamber of a manifold that is mounted in an mounting area so that the manifold sits adjacent to the casting belt at a fixed distance and disposes said starting material onto said casting belt through an outlet;

c. driving a roller in the same direction as said casting belt, said roller being attached to said manifold downstream of said outlet and above said outlet such that said starting material passes between said roller and said belt;

- d. drawing the starting material from said chamber through the tandem movement of the roller and the casting belt in the same direction;
- e. dispensing a continuous sheet of material under sufficient pressure upon the casting belt as the belt is revolvingly driven to evenly distribute the sheet of material across said width of the belt; and
- f. cooling said continuous sheet of material on said casting belt.

sarily true, that is sometimes used to refer to action in the past, and that is sometimes used for future events

present value *n* (1831) : the sum of money which if invested now at a given rate of compound interest will accumulate exactly to a specified amount at a specified future date
preser-va-tion-ist \pre-zar'-vā-shn(-o)-nist\ *n* (1927) : one who advocates preservation (as of a biological species or a historical landmark)

preser-va-tive \pri'-zar-vativ\ *adj* (14c) : having the power of preserving

'preservative *n* (15c) : something that preserves or has the power of preserving; **specif.** : an additive used to protect against decay, discoloration, or spoilage

pre-serv-e \pri'-zərv\ *vb* pre-served; pre-serv-ing [ME, fr. MF preserver, fr. ML *praeservare*, fr. LL, to observe beforehand, fr. L *prae-* + *servare* to keep, guard, observe — more at CONSERVE] *v* (14c) 1 : to keep safe from injury, harm, or destruction : PROTECT 2 a : to keep alive, intact, or free from decay b : MAINTAIN 3 a : to keep or save from decomposition b : to can, pickle, or similarly prepare for future use 4 : to keep up and reserve for personal or special use ~ vi 1 : to make preserves' 2 : to raise and protect game for purposes of sport 3 : to be preserved (as by canning) — **pre-serv-abil-i-ty** \,zar-və-'bi-lə-tē\ *n* — **pre-serv-able** \,zar-və-bəl\ *adj* — **pre-serv-a-tion** \pre-zar'-vā-shn\ *n* — **pre-serv-er** \pri'-zar-vər\ *n*

'preserve *n* (1600) 1 : fruit canned or made into jams or jellies or cooked whole or in large pieces in a syrup so as to keep its shape — often used in pl. 2 : an area restricted for the protection and preservation of natural resources (as animals or trees); esp : one used primarily for regulated hunting or fishing 3 : something regarded as reserved for certain persons

pre-shrink \,pri'-shirk, esp Southern \,shirk\ *vt* — **shrank** \,shrank\, \,shrajk\, \,shrajk\ (1926) : to shrink (as a fabric) before making into a garment so that it will not shrink much when washed

pre-side \pri'-zid\ *vi* pre-sided; pre-sid-ing [L *praesidere*] to guard, preside over, fr. *prae-* + *sidere* to sit — more at SIT] (1608) 1 : to exercise guidance, direction, or control 2 a : to occupy the place of authority ; act as president, chairman, or moderator b : to occupy a position similar to that of a president or chairman 3 : to occupy a position of featured instrumental performer — usu. used with *at* (presided at the organ) — **pre-sider** *n*

pre-siden-cy \pre-zə-dən(t)-sē, 'prez-dən(t)-sē\, 'prez-dən(t)-sē, 'prez-dən(t)-sē\ (1591) 1 : the office of president b (1) : the office of president of the U.S. (2) : the American governmental institution comprising the office of president and various associated administrative and policy-making agencies 2 : the term during which a president holds office 3 : the action or function of one that presides : SUPERINTENDENCE 4 : a Mormon executive council of the church or a stake consisting of a president and two counselors

pre-si-dent \pre-zə-dənt, 'prez-dənt, 'prez-dənt in rapid speech 'prez'-nt\ *n* (ME, fr. MF, fr. L *praesident*, *praesidens*, fr. pp. of *praesidere*) (14c) 1 : an official chosen to preside over a meeting or assembly 2 : an appointed governor of a subordinate political unit 3 : the chief officer of an organization (as a corporation or institution) usu. entrusted with the direction and administration of its policies 4 : the presiding officer of a governmental body 5 a : an elected official serving as both chief of state and chief political executive in a republic having a presidential government b : an elected official having the position of chief of state but usu. only minimal political powers in a republic having a parliamentary government — **pre-si-den-tial** \pre-zə-'den(t)-shəl, 'prez-dən(t)-shəl\ *adj* — **pre-si-den-tial-ly** \shəl-ē\ *adv* — **pre-si-dent-ship** \pre-zə-'den(t)-ship, 'prez-dən(t)-ship\, 'prez-dən(t)-ship\ *n* (1902) : a system of government in which the president is constitutionally independent of the legislature

Presidents' Day (1952) : WASHINGTON'S BIRTHDAY 2

pre-sid-i-al \pri'-si-de-əl, pri'-əl\ *adj* [LL *praesidialis*, fr. L *praesidium* garrison; fr. *praesid-*, *praesidēs* guard, governor, fr. *praesidēre*] (1611) 1 : [F *présidial*, fr. MF, after *présal*, fr. LL *praesidialis* of a provincial governor, fr. L *praesid-*, *praesidēs*] PROVINCIAL 2 : of, having, or constituting a garrison 3 : of or relating to a president : PRESIDENTIAL

pre-sid-i-ary \,de-ərē\ *adj* (1599) : PRESIDENTIAL 2

pre-sid-i-o \pri'-se-dē-ō, -ō, -si-, -zi-\ *n*; pl. -di-o-s [Sp, fr. L *praesidium*] (1763) : garrisoned place; esp : a military post or fortified settlement in areas currently or orig. under Spanish control

pre-sid-i-on \pri'-si-de-ən, pri'-ən\ *n*; pl. -ia \,de-ə\ or -i-ons [Russ *prezidium*; fr. L *praesidium* garrison] (1920) 1 : a permanent executive committee selected esp. in Communist countries to act for a larger body 2 : a nongovernmental executive committee

pre-sig-ni-ty \,pri'-sig-nə-tē\ *n* [L *praesignificare*, fr. *prae-* + *significare* to signify] (1586) : to intimate or signify beforehand : PRESAGE

pre-soak \,pri'-sōk\ *vt* (1919) 1 : to soak beforehand

pre-soak \,pri'-sōk\ (1919) 1 : an instance of presoaking 2 : a preparation used in presoaking clothes

pre-So-cratic \,pri'-sō-kra-tik, -sō\ *adj* (1871) : of or relating to Greek philosophers before Socrates — **pre-Socratic**

pre-sort \,pri'-sōrt\ *vt* (1951) : to sort (outgoing mail) by zip code usu. before delivery to a post office

press \pre's\ *n* [ME press, fr. OF, fr. *presser* to press] (13c) 1 a : a crowd or crowded condition : THROB b : a thronging or crowding forward or, together 2 : an apparatus or machine by which a substance is cut or shaped, an impression of a body is taken, a material is compressed, pressure is applied to a body, liquid is expressed, or a cutting tool is fed into the work by pressure 3 : a building containing presses or a business using presses 4 : a CLOSET, CUPBOARD 4 a : an action of pressing or pushing : PRESSURE b : an aggressive pressuring defense employed in basketball often over the entire court area 5 : the property smoothed and creased condition of a freshly pressed garment (out of ~) 6 a : PRINTING PRESS b : the act or the process of printing c : a printing or publishing establishment 7 a : the gathering and publishing or broadcasting of news : JOURNALISM b : newspapers, periodicals, and often radio and television news broadcasting c : news reporters, publishers, and broadcasters d : comment or notice in newspapers and periodicals (as getting a good ~) 8 : any of various pressure devices (as one for keeping sporting gear from warping when not in use) 9 : a lift in weight lifting in which the weight is raised to

shoulder height and then smoothly extended overhead without assist from the legs — compare CLEAN AND JERK, SNATCH

'press \vb [ME, fr. MF *presser*, freq. of *premere* to press; prob. akin to Russ *naperet'* to press] *vt* (14c) 1 : to act upon through steady pushing or thrusting force exerted in contact : SQUEEZE 2 a :

: ASSAILE, HARASS b : AFFLICT, OPPRESS 3 a : to squeeze out the juice or contents of b : to squeeze with apparatus or instruments to a desired density, smoothness, or shape 4 a : to exert influence on : CONSTRAIN b : to try hard to persuade : BESEECH, ENTREAT 5 : to move by means of pressure 6 a : to lay stress or emphasis on b : to insist on or request urgently 7 : to follow through (a course of action) 8 : to clasp in affection or courtesy 9 : to make (a phonograph record) from a matrix ~ vi 1 : to crowd closely : MASS 2 : to force or push one's way ~ 3 : to seek urgently : CONTEND 4 : to require haste or speed in action 5 : to exert pressure 6 : to take or hold a press 7 : to employ a press in basketball — **press-er** *n* — **press the flesh** : to greet and shake hands with people esp. while campaigning for political office

'press \vb [alter. of obs. *prest* to enlist by giving pay in advance] *vt* (1578) 1 : to force into service esp. in an army or navy : IMPRESS 2 a : to take by authority esp. for public use : COMMANDER b : to take and force into any usu. emergency service ~ vi : to impress men as soldiers or sailors

'press *n* (1599) 1 : impression into service esp. in a navy 2 : obs : a warrant for impressing recruits

press agent *n* [press] (1883) : an agent employed to establish and maintain good public relations through publicity — **press-agent** *vb* — **press-agent-ry** \,ā-jən-trē\ *n*

press-board \,prēs-bôrd, \,bôrd\ *n* (1849) 1 : IRONING BOARD; esp : a small one for sleeves 2 : a strong highly glazed composition board resembling vulcanized fiber

press box (1889) : a space reserved for reporters (as at a stadium)

press cloth (1899) : a cloth used between an iron and a garment

press conference (1937) : an interview or announcement given by a public figure to the press by appointment

press-gang \,prēs'-gān\ *n* [press] (1693) : a detachment of men under command of an officer empowered to force men into military or naval service — **press-gang** *vt*

press-ing *adj* (1616) 1 : urgently important : CRITICAL 2 : EARNEST, WARM — **press-ing-ly** \,prēs'-sin-lē\ *adv*

press kit *n* (1968) : a collection of promotional materials for distribution to the press

press-man \,prēs-mən, -mən\ *n* (1598) 1 : an operator of a press; esp

the operator of a printing press 2 : *Brit* : NEWSPAPERMAN

press-mark \,märk\ *n* [press (closed)] (1802) chiefly Brit : a mark or number assigned to a book to indicate its location in a library

press of sail (1794) : the fullest amount of sail that a ship can crowd on — called also **press of canvas**

pressor \,prēs-sōr, -sōr\ *adj* [LL, one that presses, fr. L *premere* to press — more at PRESS] (ca. 1890) : raising or tending to raise blood pressure; also : involving vasocostriction

press-room \,prēs'-rūm, \,rūm\ *n* (1683) 1 : a room in a printing plant containing the printing presses 2 : a room (as at the White House) for the use of members of the press

press-run \,rūn\ *n* (1945) : a continuous operation of a printing press producing a specified number of copies; also : the number of copies printed

press secretary *n* (1945) : a person officially in charge of press relations for a usu. prominent public figure (as the President's press secretary)

press-up \,prēs'-up\ (1936) *Brit* : PUSH-UP

pressure \,prēs'-cher\ *n* [ME, fr. LL *pressura*, fr. L *action* of pressing, pressure, fr. *pressus*, pp. of *premere*] (14c) 1 a : the burden of physical or mental distress 2 : the constraint of circumstance : the weight of social or economic imposition 3 : the application of force to something by something else in direct contact with it : COMPRESSION 3 ar : CHAOS : IMPRESSION, STAMP 4 a : the action of a force against an opposing force b : the force or thrust exerted over a surface divided by its area c : ELECTROMOTIVE FORCE 5 : the stress or urgency of matters demanding attention : EXIGENCY (people who work well under pressure) 6 : the force of selection that results from one or more agents and tends to reduce a population of organisms (population ~) (predation ~) 7 : atmospheric pressure 8 : a sensation aroused by moderate compression of a body part or surface — **pressure-less** *adj*

'pressure *n* [pres-tred] (1938) : a gauge for indicating fluid pressure

pressure group (1928) : an interest group organized to influence public and esp. government policy but not to elect candidates to office

pressure point *n* (1909) : a point where a blood vessel runs near a bone and can be compressed (as to check bleeding) by the application of pressure against the bone

pressure suit *n* (1936) : an inflatable suit for high-altitude or space flight to protect the body from low pressure

pressure wave *n* (1942) : a wave (as a sound wave) in which the propagated disturbance is a variation of pressure in a material medium — called also **P-wave**

pres-stur-ize Brit var of **PRESSURIZE**

pres-sur-izē \,prēs-shā-, -zē\ *vt* — **iz-ing** (1938) 1 : to confine the contents of under a pressure greater than that of the outside atmosphere; esp : to maintain near-normal atmospheric pressure in during high-altitude or spaceflight (as by means of a supercharger) 2 : to apply pressure to 3 : to design to withstand pressure — **pres-sur-ization** \,prē-shā-, -zā-shn\ *n* — **pres-sur-izér** *n*

press-work \,pres'-wərk\ *n* (1711) : the operation, management, or product of a printing press; esp : the branch of printing concerned with the actual transfer of ink from form or plates to paper

prest \,pre'st\ *adj* [ME, fr. OF, fr. L *praestus* — more at PRESTO] (14c) *obs* : READY

prest-di-gi-ta-tion \,pre-stə-, di-, -tā-shn\ *n* [F, fr. *prestidigitation* (prestidigitator, fr. *preste* nimble, quick (fr. It *presto*) + *L* *digito* finger

— more at DIGIT] (1859) : SLEIGH ti-dig-i-ta-tor \,di-jə-, tā-tōr\ *n* — **prestige** \,pre-'stēzh, '-stēj\ *n*, often fusion, fr. L *praestigiae*, pl., conjunct, constrict, fr. *praet-* + *stringa* (1829) 1 : standing or estimation in general opinion 2 : common use INFLUENCE — **prestige-ful** — **prestigious** \,pre-'sti-jəs, '-stē-ələs\ *adj* 1 : *chauvinistic* 2 : having prestige

— **prest-i-gious-ness** *n*

pre-ts-im-o \,pre-'sti-so-, -mō\ *adj* denoting a high degree [ca. 1724] reaction in music

pre-to \,pre-'stō\ *adv* or *adj* [It, fr. *presto*, adv., on hand; akin to 1599] 1 : suddenly as if by magic

— used as a direction in music

presto, *n*, pl. *prestos* (1869) : a pre

pre-stress \,prē-'stres\ *n* (1934) (as a structural beam) to counter applied load (as in incorporating

pre-stress \,prē-'stres\, \,prē-'stres\ *n* (1) prestressing

2 : the process of pre

pre-sum-able \,pri-'zū-mə-bəl\ *adj*

: acceptable as an assumption

pre-sum-ably \,bēlē\ *adv* (1846) : b:

pre-sum-e \,pri-'zūm\ *vb* pre-sume

LL *praesumere* to dare, fr. L, to a

to take; MF *presumer* to assume

consume vi (14c) 1 : to underto

DARE 2 : to expect or assume es

be true without proof (presumed

take for granted : IMPLY ~ vi 1 :

on a presumption 2 : to go be

sumed-ly \,zū-məd-lē, -zūmd-lē

presuming adj (15c) : PRESUMPTU

ad

pre-sump-tion \,pri-'zām(p)-shn\ *n*

tion, fr. LL & L; LL *praesumptio*

tion, fr. L, assumption, fr. *praesu*

ture or conduct : AUDACITY 2 :

probability : ASSUMPTION b : the

probability to a belief 3 : a legal

fact or a fact not certainly known that

existence of some other fact

pre-stump-tive \,zām(p)-tiv\ *adj* (1

sumption 2 : giving grounds for

an embryonic precursor with

structure or tissue in the normal c

pre-stump-tive-ly *adv*

pre-stump-tuous \,pri-'zām(p)-chā-

presuppose, fr. LL *praesupponere*

pose — more at SUPPOSE] (15c)

quire as an antecedent in logic or

po-zī-shn\ *n* — **pre-sup-osi-ti**

pre-syn-ap-tic \,pri'-sō-, -nap-tik\ *ai*

before a nerve synapse — **pre-syst**

pre-a-poi-ter or **pre-ə-poi-ter**

(1959) : to dress to wear clothes

preteene \,pri'-tēn-, -tēn\ *n* (1952)

preteend *adj* (1954) 1 : relating to

to 12 year-old age group (~ fasih

preteen-ag-er \,pri'-tēn-ər\, \,pri'-tēn-jər\ *n*

pre-tend \,pri'-tēnd\ *vt* [ME, fr. I

lit, to stretch out; fr. *pre-* + (15c) 1 : to give a false appearance

(does not ~ to be a psychiatrist, ~ deafness) b : to claim, represent he could not really feel] 3 a : to feign an action, part, or role

ASSUME

pretent *adj* (1911) : IMAGINARY,

pre-tend-ed *adj* (15c) : professed c

tion — **pre-tend-ed-ly** *adv*

pre-tend-er \,pri'-tēnd-r\ *n* (1609)

lays claim to something; **specif.** : have no just title

b : one who **mis-**

pre-te-nse or **pre-te-nce** \,pri'-ten\, \,pri'-ten\ (assumed) ML *praetensa*, fr. LL, *derel* (15c) 1 : a claim made or in

2 : mere ostentation : PRETENTI

osity and ~ — Bennett Cert

: an inadequate or insincere atte

quality 4 : professed rather than **was** there under (false ~) 5

show : SIMULATION (saw through

pre-te-n-sion \,pri'-ten(t)-shn\ *n*

value : PRETEXT 2 : a claim or

claim or right to attention or hon

or intention that may or may not

~ 5 **1950, PRETENTIOUS**

non-less \,ləs\ *adj*:

pre-te-n-sion \,pri'-ten(t)-shn\ *n*

pre-te-n-tions \,pri'-ten(t)-shn\ *adj*

son, fr. ML *praetentio*, *praetent*

itized by pretension: as ~

claims (as of value or standing) :